

CLAIMS

What is claimed is:

1. A subscriber line interface circuit apparatus, comprising:
a driver combining a downstream voice signal in a voiceband range
5 and a downstream data signal in a non-voiceband range into a common
downstream signal for a subscriber line; and
receiver circuitry coupled to provide an upstream data signal and an
upstream voice signal from an upstream signal carried by the subscriber line,
wherein the driver and receiver circuitry reside on a same integrated circuit
10 die.
2. The apparatus of claim 1 further comprising:
an upstream low pass filter providing a low pass filtered upstream
signal as an upstream voice signal, wherein the upstream low pass filter
resides on the integrated circuit die.
- 15 3. The apparatus of claim 1 further comprising:
a downstream low pass filter providing a low pass filtered
downstream voice signal to the driver, wherein the downstream low pass
filter resides on the integrated circuit die.
4. The apparatus of claim 1 wherein the voiceband range is from
20 approximately 300 Hz to 4 kHz.
5. The apparatus of claim 1 further comprising:
an upstream high pass filter providing a high pass filtered upstream
signal as an upstream data signal, wherein the upstream high pass filter
resides on the common integrated circuit die.
- 25 6. The apparatus of claim 1 further comprising:

a downstream high pass filter providing a high pass filtered downstream data signal to the driver, wherein the downstream high pass filter resides on the integrated circuit die.

7. The apparatus of claim 1 wherein the driver further combines a metering signal into the downstream signal.

8. The apparatus of claim 7, further comprising:
a metering signal cancellation circuit residing on the common integrated circuit die, wherein the metering signal cancellation circuit substantially cancels any metering signal present in the upstream voice signal.

9. The apparatus of claim 8 wherein the metering signal cancellation circuit further comprises a finite impulse response filter responsive to the metering signal provided to the driver.

10. The apparatus of claim 1 wherein the voice and data signals are weight coupled to the driver wherein the weights permit varying the proportion of combination of the downstream voice and downstream data signals.

11. The apparatus of claim 1 wherein the non-voiceband range is greater than 25 kHz.

12. The apparatus of claim 1 wherein the downstream data signal is a discrete multi-tone encoded signal.

13. A subscriber line interface circuit apparatus, comprising:
driver circuitry for combining and driving a downstream voice signal, a metering signal and a downstream data signal onto a subscriber line; and
receiver circuitry for receiving and separating an upstream signal from the subscriber line into an upstream voice signal and an upstream data signal,

wherein the driver and receiver circuitry reside on a common integrated circuit die.

14. The apparatus of claim 13 wherein the voice signal resides in a voiceband range of approximately 300 Hz to 4 kHz.

5 15. The apparatus of claim 13 wherein the upstream and downstream data signals resides in a non-voiceband range greater than 25 kHz.

16. The apparatus of claim 13 wherein the upstream and downstream data signals are discrete multi-tone encoded data signals.

10 17. The apparatus of claim 13 further comprising:
an upstream low pass filter providing a low pass filtered upstream signal as an upstream voice signal, wherein the upstream low pass filter resides on the integrated circuit die.

18. The apparatus of claim 13 further comprising:
a downstream low pass filter providing a low pass filtered
15 downstream voice signal to the driver circuitry, wherein the downstream low pass filter resides on the integrated circuit die.

19. The apparatus of claim 13 further comprising:
a metering signal cancellation circuit residing on the common
integrated circuit die, wherein the metering signal cancellation circuit
20 substantially cancels any metering signal present in the upstream voice signal.

20. The apparatus of claim 19 wherein the metering signal cancellation circuit further comprises a finite impulse response filter responsive to the metering signal provided to the driver circuitry.